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ORIGINAL ARTICLE

Attachment orientations of Greek cancer patients in palliative care. A validation study of the Experiences in Close Relationships scale (ECR-M16)

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Summary

Purpose: *Health-care professionals may serve as attachment figures, nevertheless little research has been made in the palliative context. The psychometric properties of the brief ECR-M16 in Greek cancer patients were explored.*

Methods: *The ECR-M16 was translated into Greek (G-ECR-M16), and was administered to 100 patients before starting palliative care and 7 days later to test its stability. Patients (N=35) also completed the EORTC QLQ-C30 scales.*

Results: *Cronbach's alphas for the discomfort for closeness, anxiety and avoidance scales were 0.871, 0.762, and 0.761, respectively. Test-retest reliability was very satisfactory (p< 0.0005). Factor analysis yielded three factors (58.75% of the variance). Known-groups validity showed that discomfort with closeness had a statistically significant correlation with advanced disease stage (p=0.022).*

Conclusions: *The G-ECR-M16 is a valid research tool for the attachment patterns' impact in Greek cancer patients.*

Key words: *attachment, cancer patients, health-care professionals, oncology, palliative care*

Introduction

The concept of adult attachment refers to internalized expectations and preferences regarding proximity to significant others and protection in times of need [1]. Once formed, attachment styles affect cognitions, emotions, and behaviors in all domains of life [2]. The attachment theory is a theory of a selected class of close relationships involving trust, verbal, and non-verbal communication, soothing contact and protective care in the face of real and perceived threats to survival and security [3].

Conceptually, insecure histories and low closeness to a parent in childhood are consistent with an attachment theory perspective. The sense of closeness to a parent is part of the attachment process. The belief, based on the consistency of experience, that one can derive feelings of safety and comfort, as well as protection, from proximity to a specific person is what makes an attachment figure uniquely salient in a child's life.

The attachment theory asserts that developmental experiences with key relational figures contribute to internal "working models" of self in relation to others [3,4]. According to Bowlby [3,4] working models of attachment are dynamic cognitive structures that are likely to change over time through the incorporation and adaptation of new information and experiences [5].

Moreover, whether or not a relationship serves an attachment function may depend on context. In the context of illness proximity to a health-care professional may serve an attachment function. Hence, a patient's attachment style probably guides their interaction. Illness, injury and discomfort that bring a patient to a doctor are threats to health, and are events that Bowlby [3]

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considered would activate the attachment system. According to that perspective the way people react to perceived threats to health is determined in part by the more general preferences for help seeking and help rejecting that comprise attachment style. The theoretical concepts of attachment security and care-receiving are salient in the case of advanced cancer [6]. There has been growing interest in the contribution of attachment orientations to the ability to cope with medically associated problems [7]. It has been observed that increased dependency needs in individuals with advanced and progressive disease may be threatening and trigger a crisis in those with limitations in their capacity to rely on others [7].

Consequently, doctors experience 10-20% of patients as being frustrated or difficult [8], the defining feature of difficult doctor-patient encounters is the unpleasant feeling that arises in the physician as he/she interacts with the patient, which emphasizes the interpersonal nature of the problem.

Research has converged on a definition of adult attachment based on attachment-related anxiety (a model of the self), and attachment-related avoidance (a model of others) [9]. Avoidant people generally regulate their negative emotions by deactivating attachment-related clues and heavily relying on their own resources, and

thus, conceal their weakness [10]. They tend to suppress the need to seek proximity, especially in the face of any separation threats, by preventing the representation of attachment figures from becoming conscious [11] and react more negatively to care-receiving [6] which may result in significant relationship distress. In addition, they use "non-differentiated defensiveness" to prevent them from relating to other people and to maintain distance from them emotionally [12]. Avoidant-attached individuals have been found to delay in seeking health care [13].

The similarity of high emotional regulation in avoidant-attached individuals and some studies of cancer patients have been noted in the literature [14]. Avoidant attachment style was found to be related to difficulties in social relationships and an increase in psychological distress following a cancer diagnosis [15]. Since experiencing a disease like cancer could create more emotional pressure, which requires using more adaptive effect regulation strategies, a cancer diagnosis may have detrimental effects on the self-view and could increase feelings of vulnerability [16]. Consequently, although avoidant people cope with distressing feelings by defensively ignoring personal weakness, their defensive strategies may not be enough to restore their inadequacy feelings following the cancer diagnosis.

On the other hand**,** anxious individuals experience separation from attachment figures as catastrophic and have a strong need for support and affection, and may exhibit intense emotions. In addition, anxious attachment usually leads to excessive use of maladaptive affect regulation strategies resulting in experiencing negative moods [17].

In contradiction, attachment security enables patients to seek and accept care and to effectively communicate their emotions) [18]. Securely attached individuals can allow themselves to feel more comfortable with closeness and interdependence, to seek support in times of stress, to respond with communication and compassion in conflict situations [19] and to appraise the quality of their social relationships and determine whether their relations meet their needs [4].

The attachment literature has documented an increase in the number of self-report instruments of adult attachment published after Hazan and Shaver's [20] seminal adaptation at Ainsworth's infant typology [21]. However, while it has been suggested that attachment style may be related to factors that are involved with physician perceptions of patient difficulty, the relationship between patient's attachment style and physician in a palliative care setting has not been sufficiently tested.

Therefore, the aim of the present study was to assess the psychometric properties of the Experiences in Close Relationships scale brief measure (ECRS-M16) in a sample of advanced cancer patients treated in a palliative care unit.

Methods

This study was performed at the outpatient clinic of a palliative care unit in Athens, Greece. This unit is approached by cancer patients from all over the country. All patients suffered from cancer and approached the unit for symptom relief. The study was conducted from April to July 2014. A representative sample of 138 patients was drawn from a total of 252 patients who were treated in the unit that period, representative to the population of cancer patients in Greece. A total of 38 patients were excluded from our sample due to difficulties in reaching them and due to refusal to participate in the study. Criteria for inclusion were histologically confirmed malignancy, age >18 years, ability to communicate effectively with the health-care profes-

sionals, provision of informed consent, and knowledge of the disease diagnosis. Criteria for exclusion were history of drug abuse, diagnosis of a psychotic illness, or significant cognitive impairment (MMSE>14).

Researchers recorded data on disease status, treatment regimen (surgery, chemotherapy, radiotherapy, opioids), performance status as defined by the Eastern Cooperative Oncology Group (ECOG) [22] and demographic characteristics (Table 1). The study design included administration of the Greek version of the ECR-M16 scale (G-ECR-M16) before starting palliative care treatment (baseline evaluation) and at a follow-up visit 7 days later to test the scale's stabil ty. We were also interested in the relationship between the G-ECR-M16 and EORTC QLQ-C30 (version 3.0) [23]. Therefore, some patients (N=35) from the original sample also completed the EORTC QLQ-C30 (version 3.0). The Hospital's ethics committee approved this study, which was conducted according to Declaration of Helsinki Principles and according to guidelines for Good Clinical Practice.

Table 1. Demographic and disease related characteristics

Characteristics	*N*	*%*
Age, years		
Mean (SD) 69.10 (±12.9) yrs	Range (32-98)	
Education		
Primary school	32	32.0
High school	50	50.0
University	18	18.0
Gender		
Male	50	50.0
Female	50	50.0
Cancer location		
Gastrointestinal	26	26.0
Urogenital	34	34.0
Lung	14	14.0
Breast	15	15.0
Other	11	11.0
Marital status		
Married	97	97.0
Unmarried	3	3.0
Grade		
I	18	18.0
II	53	53.0
III	29	29.0
ECOG PS score		
1	18	18.0
2	53	53.0
3	29	29.0
Surgery		
No	18	18.0
Yes	82	82.0
Metastasis		
No	25	25.0
Yes	75	75.0
Chemotherapy		
No	10	10.0
Yes	90	90.0
Radiotherapy		
No	22	22.0
Yes	78	78.0
Opioids		
Mild	82	82.0
Strong	18	18.0

In children, attachment styles are reliably assigned into categories through observation in the Standardized Strange Situation [21]. In adults there is no such gold standard. The difference is reflected in correlations between self-report scales and interview methods of determining attachment style, which are generally significant and modest [24].

The ECR-M16 is a modified version of the 36-item ECR [25] for measuring attachment orientations to close others in patients with advanced cancer. It comprises 16 items in two subscales (attachment anxiety and avoidance). Respondents are asked to rate each item on a scale of 1-7 (1:completely disagree, 7:completely agree). ECR-M16 is appropriate to understand coping in medical contexts, where health outcomes are influenced by the ability of individuals to seek out, trust, and interact with the health care professionals. Moreover, there are no validated cut-off values to collapse ECR-M16 dimension scores into attachment categories.

The EORTC QLC-C30 (version 3.0) is a second-generation questionnaire that has been developed for patient self-assessment of QoL [23]. It evaluates symptoms, physical function, psychosocial dimensions, and global health status. It is a 30-item questionnaire scored in 4-point scales (1: not at all, 4: very much). All scales (5 functional, 3 symptom, 1 global health status/QoL) and single item measures (5 additional symptoms) range in a transformed score from 0–100. A high score for a functional scale represents a high/healthy level of functioning. A high score for the global health status/QoL represents high quality of life. A high score for a symptom scale/item represents a high level of symptomatology/problems. The questionnaire has been validated by the authors of the present study in a Greek sample of cancer patients attending a palliative care unit [23].

Translation

The "forward-backward" procedure was applied to translate the ECR-M16 scale from English to Greek. Two independent translators translated it to Greek and then another two independent translators translated it back into English. A matching of these translations was then conducted.

Statistics

Descriptive statistics, including means, and counts and percentages for the variables were calculated. Next, five indirect methods to evaluate validity were adopted: First, exploratory factor analysis (principal axis factoring with oblimin rotation); second, convergent or cri-

terion validity (correlations between G-ECR-M16 and EORTC-QLQ C30); third, inter-scale correlations; fourth, item-total correlations for the subscales; and finally, known-groups validity by detecting group differences according to stage of disease using the one way ANOVA model and Bonferroni test. To assess the reliability of the questionnaire, the internal consistency (Cronbach's alpha coefficients) and test–retest intraclass correlation coefficient (ICC) and Paired samples t-test were calculated. No cases were omitted from the analyses due to missing data. The statistical software SPSS PC for Windows (version 17.0) was used in the statistical analyses. Statistical significance was set at $p<0.05$.

Results

Psychometric properties

Factor analysis

Exploratory factor analysis (EFA-principal component analyses with varimax rotation) was conducted to identify a viable factor structure of the ECR-M16 instrument. The correlation between the variables was moderate. Items with factor loadings ≥ 40 (including values that rounded 0.40) and those that did not load on more than one factor were retained. Three factors were extracted, explaining 58.76% of the total variance (Table 2). For the interpretation of the factor solution, varimax rotation was used (Table 3). This three-factor solution was deemed appropriate by examining the magnitude and rate of change in Eigen values. Based on the rule that meaningful factors should be associated with eigenvalues greater than 1.0 and a marginal change occurs after two factors (scree plot), the three-factor solution is appropriate [26]. The variables constituting the three factors were (factor 1) "discomfort with closeness", accounting for 33.25% of the total variance, (factor 2) "anxiety", accounting for 17.79% of the total variance, and (factor 3) "avoidance", accounting for 7.72% of the total variance.

Table 2. Eigen values and explained variance of the G-ECR-M16

Items	*Eigen values*	*Variance %*	*Cumulative %*
1	5.32	33.25	33.25
2	2.85	17.79	51.04
3	1.23	7.72	58.75
4	0.94	5.90	64.65
5	0.86	5.37	70.02
6	0.73	4.54	74.55
7	0.63	3.96	78.51
8	0.61	3.84	82.35
9	0.52	3.23	85.58
10	0.45	2.80	88.38
11	0.43	2.71	91.09
12	0.37	2.31	93.40
13	0.34	2.15	95.55
14	0.31	1.93	97.48
15	0.26	1.60	99.09
16	0.15	0.91	100.00

Table 3. Factor loadings of the G-ECR-M16 subscales with varimax rotation

Scales	*Items*	*Factors*		
		1	*2*	*3*
Discomfort with closeness	Q16	0.779		
	Q2	0.773		
	Q4	0.766		
	Q14	0.751		
	Q6	0.724		
	Q12	0.645		
	Q10	0.604		
	Q8	0.602		
Anxiety	Q13		0.822	
	Q9		0.724	
	Q1		0.667	
	Q5		0.529	
Avoidance	Q11			0.821
	Q15			0.792
	Q7			0.720
	Q3			0.649

Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization. Loadings below 0.4 are not presented

Item-total correlations for the subscales

All discomfort with closeness items showed a significant correlation with the "discomfort with closeness" subscale (range 0.361 to 0.570, $p<0.0005$). Similarly, anxiety items showed a significant correlation with the "anxiety" subscale (range 0.300 to 0.538, $p<0.0005$). Likewise, all avoidance items showed a significant correlation with the "avoidance" subscale (range 0.329 to 0.699, $p<0.0005$). The three subscales correlated significantly with each other ($r=0.172$-0.338, $p<0.05$, not shown in Table).

Known-groups validity

The G-ECR-M16 scale was examined in terms of the ability of its scales to distinguish between

subgroups of patients formed on the basis of their stage of disease. G-ECR-M16 discriminated well between subgroups of patients, indicating that discomfort for closeness scores were significantly higher in patients with an advanced disease stage compared with anxiety and avoidance (Table 4).

Table 4. Scores by stage of disease, known-groups validity

Scales	*Stage of disease*	*N*	*Mean±SD*	*p value*
Discomfort with closeness	I	18	27.17 ± 10.29	0.022
	II	53	25.87 ± 8.19	
	III	29	31.34 ± 7.77	
Anxiety	I	18	11.67 ± 4.47	0.747
	II	53	12.43 ± 5.04	
	III	29	11.76 ± 4.42	
Avoidance	I	18	8.17 ± 3.19	0.841
	II	53	8.15 ± 3.29	
	III	29	7.76 ± 2.44	

Convergent or criterion validity

Convergent or criterion validity was assessed by correlating the ECR-M16 subscales with indicators of quality of life (EORTC QLQ-C30 functioning and symptoms). The correlation showed a moderate correlation between ECR-M16 subscales and EORTC QLQ-30 (r= 0.244-0.432, p<0.05) (Table not shown).

Internal consistency

The internal consistency as assessed by Cronbach's alpha was 0.871 for the discomfort with closeness subscale, 0.762 for the anxiety subscale, and 0.761 for the avoidance subscale. All values were higher than 0.7, suggesting that the items were interdependent and homogeneous in terms of the construct they measure [27].

Test-retest reliability

The stability (test-retest reliability) of patients' responses was evaluated by selecting at random 35 patients who then completed the questionnaire 7 days after the baseline evaluation. The results of stability indicated that the ECR-M16 discomfort with closeness, anxiety and avoidance scale scores were remarkably consistent between the two occasions and were significantly correlated (p<0.0005).

Discussion

Attachment theory has been described as one of the most powerful theories to integrate the wide variety of coping concepts [28] and has implications for the giving and receiving of care in the context of a life-threatening disease like cancer. Attachment orientations in Greek cancer patients receiving palliative care have not been studied. Thus, the purpose of the present study was the validation of one of the most widely and well-established instruments for the measurement of attachment orientations in cancer patients, the ECR-M16.

This is the first documented study of a Greek version of the ECR-M16 (G-ECR-M16). The original ECR-M16 [29] is the only well-established instrument for the evaluation of cancer patients' attachment patterns. The present study provides data indicating the validity and reliability of the G-ECR-M16, suggesting its application for the investigation of the attachment orientations in cancer patients receiving palliative care.

The Greek version of the ECR-M16 scale (G-ECR-M16) proved to be acceptable to the participating patients with advanced cancer. The measure was simple to administer and score and seemed to be well-accepted by the respondents confirming its usefulness in Greek cancer patients. The original CRS-36 has been proved to be culturally acceptable in the Greek population [30]. In the present patient sample the internal consistency coefficients revealed Cronbach's alpha ranging from 0.761 to 0.871. The current study showed high retest reliability during a 7-day period, demonstrating that it is a measure with satisfactory stability (p<0.0005) supporting the robustness of the instrument.

In order to demonstrate construct validity, attachment subscales were expected to correlate with EORTC QLQ-C30 (version 3.0). This was based on the theoretical assumption that a relationship between physician and patient, characterized by communication on goals and tasks of treatment, along with trust, predicts patient's quality of life [31]. Moreover, the understanding of what lies behind a patient's behavior, wishes, and needs may

lead to increased empathetic responsiveness from healthcare professionals, and thus contribute to an improvement in the patient's quality of life in palliative care [14]. Patients having an enmeshed attachment pattern could have their emotional equilibrium maintained by very stable and predictable support [7]. Moreover, the results of the factor analyses confirmed a three-factor solution (discomfort with closeness, anxiety and avoidance) of the ECR-M16, suggesting that the three subscales can be considered to measure three independent dimensions of attachment style. Although Lo's et al. study [29] revealed two factors (anxiety and avoidance), their results showed that discomfort with closeness was related to both anxiety and avoidance [32]. The explanation is that while avoidant individuals withdraw from others in response to their discomfort, consistent with their need for independence, anxious individuals attempt to pull others even closer, consistent with their fear of abandonment [33]. The finding that discomfort with closeness has the highest loading (33.25%), and a statistically significant correlation with stage of disease (p=0.022) is quite interesting. A possible interpretation is that psychological distress reduces the patient's ability to do the emotional work of separating and saying goodbye [34]. Patients may mourn the changes in their physical and mental capacities or their role change within their family as they become more debilitated [35]. On the other hand, anxious patients may have difficulty coping with the stressors and symptoms of their illness. Given the threat and uncertainties associated with the diagnosis of cancer and the dependency on physicians, patients may feel the need to trust their physician in making decisions [36]. An anxious attachment style has been found to be related to poorer ability to feel fully supported by medical staff, weaker alliance and poorer treatment adherence, when patient-physician communication is poor [37]. Patient's dependency on their physician means a large responsibility for physicians, not only in a medical but also in a psychological sense. The role of the health-care professional is very important in shaping, enhancing and maintaining feelings of trust and satisfaction in insecurely attached patients [38].

Moreover, avoidant individuals withdraw from others in response to their discomfort, consistent with the emphasis on independence anxious individuals attempt to pull others even closer, consistent with their fear of abandonment [39].

Clinicians knowing and considering the different attachment patterns could better understand and be less distracted by contradictory signals and behavior from patients with an insecure attachment pattern and could therefore employ a sufficiently elaborate care approach. An appreciation of a patient's attachment pattern has beneficial influence on the patient-physician relationship and improves help care outcomes [37,38]. Clinicians should consider assessing attachment style and referring patients for psychosocial interventions. In addition, health care providers should be sensitive to attachment-related needs and motives and tailor their interactions with the patient to the patient's attachment style [40]. Providing the patient information may increase feelings of control and autonomy and also help patients developing feelings of safety and comfort. A secure physician-patient relationship will likely result in open communication about needs, more compliance and fewer unnecessary calls to physicians [41].

The Greek modified attachment scale (G-ECR-M16) is appropriate in order to understand coping in palliative care contexts, where health outcomes are influenced by the ability of individuals to seek out, trust, and interact with the multiple persons involved in their care. It is brief and convenient, as well as reliable and comprehensive. Taking into consideration the recognized difficulties in recruiting palliative care patients into research, this study achieved a reasonable inclusion rate.

A doctor responsive to a patient's needs may see as a supplementary attachment figure. Patients' attachment security plays a crucial role in their relation with their physician, even at the terminal phase. Helping physicians respond to their patients so that they feel safe and cared for is critical as it has a beneficial effect on patient behaviors and health outcomes.

Conflict of interests

The authors declare no confict of interests.

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